Claims

1. (Canceled)

2. (Canceled)

3. (Canceled)

4. (Canceled)

5. (Canceled)

6. (Canceled)

7. (Canceled)

8. (Canceled)

9. (Currently Amended) A wavelength division multiplexing (WDM) transmitter system, comprising:

a plurality of optical transmitters;

a filter array including a plurality of filters, the filters each connectable to an associated optical transmitter and having a disparate center frequency and a spectrum width dynamically adjustable to correspond to a bandwidth of an optical signal generated by the associated optical transmitter; ~~and~~

a combiner operable to combine into a wavelength division multiplexing (WDM) signal a plurality of the optical signals generated by the optical transmitters and passing through the filters of the filter array; ~~array~~

a plurality of transponders, the transponders each connectable to an associated optical transmitter and operable to adjust a center frequency of a received optical signal to generate a frequency adjusted optical signal and to provide the frequency adjusted optical signal to a connected filter of the filter array; and

wherein each of the transponders is directly connected to the associated optical transmitter, further comprising a cross-connect operable to connect at least a subset of the transponders to at least a subset of the filters of the filter array.

10. (Currently Amended) The WDM transmitter system of Claim 9, wherein at least two of the optical transmitters comprise disparate rate modulators.

11. (Currently Amended) The WDM transmitter system of Claim 9, wherein at least one of the optical transmitters is operable to modulate data for a mixed bandwidth channel.

12. (Currently Amended) The WDM transmitter system of Claim 9, further comprising a cross-connect operable to connect at least a subset of the optical transmitters to at least a subset of the filters in the filter array.

13. (Currently Amended) The WDM transmitter system of Claim 9, further comprising at least one transponder, the transponder operable to receive from a connected optical transmitter an optical signal having a center frequency, to generate a frequency adjusted optical signal having a disparate center frequency and to provide the frequency adjusted optical signal to a connected filter of the filter array.

14. (Canceled)

15. (Canceled)

16. (Currently Amended) The WDM transmitter system of Claim 9~~-15~~, the cross-connect further operable to connect any one of the transponders to any one of the filters of the filter array.

17. (Currently Amended) The WDM transmitter system of Claim 9~~-15~~, wherein each of the transponders comprises a bit-to-bit transponder operable to provide wavelength conversion for the received optical signal.

18. (Currently Amended) The WDM transmitter system of Claim 17, wherein each of the transponders comprises selectable clock sources to match an incoming bit rate of the received optical signal.

19. (Currently Amended) The WDM transmitter system of Claim 9, further comprising a controller comprising logic encoded in media, the controller operable to determine a bandwidth for a channel, to select and connect an optical transmitter and a filter for the channel and to dynamically adjust the spectrum width of the filter to correspond to the bandwidth of the channel.

20. (Currently Amended) The WDM transmitter system of Claim 19, the controller further operable to select the optical transmitter based on the bandwidth of the channel.

21. (Currently Amended) The WDM transmitter system of Claim 19, the controller further operable to deactivate filters neighboring the filter of the channel that are within the spectrum width of the channel.

22. (Canceled)

23. (Canceled)

24. (Canceled)

25. (Canceled)

26. (Canceled)

27. (Canceled)

28. (Canceled)

29. (Canceled)

30. (Canceled)

31. (Canceled)

32. (Canceled)

33. (Canceled)

34. (Canceled)

35. (Canceled)

36. (Canceled)

37. (Canceled)

38. (Canceled)

39. (Canceled)

40. (Canceled)

41. (Canceled)

42. (Canceled)

43. (Canceled)

44. (Canceled)

45. (Canceled)

46. (Canceled)

Please add the following claims:

47. (New) A method for provisioning a wavelength division multiplexing (WDM) transmitter system, comprising:

connecting to each of a plurality of optical transmitters a respective filter of a filter array comprising a plurality of filters, the filters each having a disparate center frequency and a spectrum width dynamically adjustable to correspond to a bandwidth of an optical signal generated by the associated optical transmitter;

combining into a wavelength division multiplexing (WDM) signal a plurality of the optical signals generated by the optical transmitters and passing through the filters of the filter array;

directly connecting each of a plurality of transponders to an associated optical transmitter and adjusting a center frequency of a received optical signal to generate a frequency adjusted optical signal and to provide the frequency adjusted optical signal to a connected filter of the filter array; and

connecting at least a subset of the transponders to at least a subset of the filters of the filter array using a cross-connect.

48. (New) The method of Claim 47, wherein at least two of the optical transmitters comprise disparate rate modulators.

49. (New) The method of Claim 47, further comprising modulating data for a mixed bandwidth channel using at least one of the optical transmitters.

50. (New) The method of Claim 47, further comprising connecting at least a subset of the optical transmitters to at least a subset of the filters in the filter array using a cross-connect.

51. (New) The method of Claim 47, further comprising:

receiving, using at least one transponder, from a connected optical transmitter an optical signal having a center frequency;

generating a frequency adjusted optical signal having a disparate center frequency; and

providing the frequency adjusted optical signal to a connected filter of the filter array.

52. (New) The method of Claim 47, further comprising connecting any one of the transponders to any one of the filters of the filter array using the cross-connect.

53. (New) The method of Claim 47, wherein each of the transponders comprises a bit-to-bit transponder operable to provide wavelength conversion for the received optical signal.

54. (New) The method of Claim 53, wherein each of the transponders comprises selectable clock sources to match an incoming bit rate of the received optical signal.

55. (New) The method of Claim 47, further comprising:

determine a bandwidth for a channel;

selecting and connecting an optical transmitter and a filter for the channel; and

dynamically adjusting the spectrum width of the filter to correspond to the bandwidth of the channel.

56. (New) The method of Claim 55, further comprising selecting the optical transmitter based on the bandwidth of the channel.

57. (New) The method of Claim 55, further comprising deactivating filters neighboring the filter of the channel that are within the spectrum width of the channel.

58. (New) A system for provisioning a wavelength division multiplexing (WDM) transmitter system, comprising:

means for connecting to each of a plurality of optical transmitters a respective filter of a filter array comprising a plurality of filters, the filters each having a disparate center frequency and a spectrum width dynamically adjustable to correspond to a bandwidth of an optical signal generated by the associated optical transmitter;

means for combining into a wavelength division multiplexing (WDM) signal a plurality of the optical signals generated by the optical transmitters and passing through the filters of the filter array;

means for directly connecting each of a plurality of transponders to an associated optical transmitter and adjusting a center frequency of a received optical signal to generate a frequency adjusted optical signal and to provide the frequency adjusted optical signal to a connected filter of the filter array; and

means for connecting at least a subset of the transponders to at least a subset of the filters of the filter array using a cross-connect.